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	Application No.	Applicant(s)
Notice of Allowability	09/610,704	KILGER ET AL.
	Examiner	Art Unit	
	Michael C. Heck	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Amendment dated 10 September 2005*.

2. ☒ The allowed claim(s) is/are *1-18, 20-31 and 33-42*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the
         International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF
   INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

   (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

      1) ☒ hereto or 2) ☐ to Paper No./Mail Date _____ .

   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
      Paper No./Mail Date _____ .

   **Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of
   each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the
   attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☒ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
   Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit
   of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413),
   Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

TARIQ R. HAFIZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER

EXAMINER'S AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview

with Nancy R. Gamburd, Reg. No. 38,147 on 17 November 2005.

The Claims has been amended as follows:

1 (Currently Amended). A method of integrating and modeling information stored

in a plurality of disparate databases, the method comprising:

identifying at least one qualitative variable which is common to each database of

the plurality of disparate databases;

transforming the at least one qualitative variable into one or more quantitative

variables;

using a processing device, converting a portion of the information stored in each

database of the plurality of disparate databases according to the one or more

quantitative variables to form converted information;

using a processing device, performing a cluster analysis using converted

information from each database of the plurality of disparate databases to form a plurality

of clusters;

using a processing device, linking through the plurality of clusters the plurality of

disparate databases based upon data of the converted information to form an integrated

database; and

using a processing device, creating a behavioral model, using corresponding

data of the plurality of clusters of the integrated database, for predicting individual

behavior. from the integrated database using data from each database of the plurality of

disparate databases.

3 (Currently Amended).   The method of claim 2, further comprising:

creating the behavioral model by performing a cluster analysis of the plurality of

individuals using data from each database of the plurality of disparate databases to form

a plurality of clusters;

converting one or more clusters of the plurality of clusters into at least one

supercluster; and

assigning the plurality of individuals to a corresponding cluster or supercluster

using data from each database of the plurality of disparate databases.

9 (Currently Amended).   A system for integrating and modeling information

stored in a plurality of disparate databases, the system comprising:

an integrating arrangement which:

identifies at least one qualitative variable which is common to each database of

the plurality of disparate databases,

transforms the at least one qualitative variable into one or more quantitative variables,

converts a portion of the information stored in each database of the plurality of disparate databases according to the one or more quantitative variables to form converted information,

performs a cluster analysis using converted information from each database of the plurality of disparate databases to form a plurality of clusters,

links through the plurality of clusters the plurality of disparate databases ~~based upon data of the converted information~~ to form an integrated database; and

creates a behavioral ~~model from~~ model, using corresponding data of the plurality of clusters of the integrated database, for predicting individual behavior. ~~using data from each database of the plurality of disparate databases.~~

11 (Currently Amended). The system of claim 10, wherein the integrating arrangement ~~creates the behavioral model by performing a cluster analysis of the plurality of individuals using data from each database of the plurality of disparate databases to form a plurality of clusters,~~ converts one or more clusters of the plurality of clusters into at least one supercluster, and assigns the plurality of individuals to a corresponding cluster or supercluster using data from each database of the plurality of disparate databases.

17 (Currently Amended).   A method for creating a behavioral model from information stored in a plurality of disparate databases, the method comprising:

determining a plurality of variables from each database, and converting the plurality of variables to form a plurality of statistical drivers, at least a portion of the plurality of statistical drivers common to each database of the plurality of disparate databases;

~~using a processing device, linking the information stored in the plurality of disparate databases based upon corresponding data of the plurality of statistical drivers;~~

using a processing device, performing a first cluster analysis using ~~the information stored in~~ <u>corresponding data of the plurality of statistical drivers common to</u> each database of the plurality of disparate databases to create a plurality of simultaneous cluster solutions across all databases of the plurality of disparate databases; [[and]]

<u>using a processing device, linking through at least one simultaneous cluster solution of the plurality of simultaneous cluster solutions the information stored in the plurality of disparate databases; and</u>

validating at least one simultaneous cluster solution of the plurality of simultaneous cluster solutions as a discriminatory behavioral model <u>for predicting individual behavior.</u>

30 (Currently Amended).   A system for creating a behavioral model from information stored in a plurality of disparate databases, the system comprising:

a storage device storing data from one or more of the plurality of disparate databases; and

a processing device coupled to the storage device, the processing device adapted to determine a plurality of variables from each database and convert the plurality of variables to form a plurality of statistical drivers, at least a portion of the plurality of statistical drivers common to each database of the plurality of disparate databases; to link the information stored in the plurality of disparate databases based upon corresponding data of the plurality of statistical drivers; to perform a first cluster analysis using corresponding data of the plurality of statistical drivers common to the information stored in each database of the plurality of disparate databases to create a plurality of simultaneous cluster solutions across all databases of the plurality of disparate databases; to link through at least one simultaneous cluster solution of the plurality of simultaneous cluster solutions the information stored in the plurality of disparate databases; and to validate at least one simultaneous cluster solution of the plurality of simultaneous cluster solutions as a discriminatory behavioral model for predicting individual behavior.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Michael C. Heck whose telephone number is (571) 272-6730. The Examiner can normally be reached Monday thru Friday between the hours of 8:30am - 4:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq R. Hafiz can be reached on (571) 273-6729.

Any response to this action should be mailed to:

Director of the United States Patent and Trademark Office
P.O. Box 1450
Alexandria, Virginia 22313-1450

Or faxed to:

(571) 273-8300   [Official communications; including After Final communications labeled "**Box AF**"]

(571) 273-6730   [Informal/Draft communication, labeled "**PROPOSED**" or "**DRAFT**"]

mch
18 November 2005

DETAILED ACTION

Response to Amendment

1.   The objection to the specification in the last Office Action has been overcome by the applicant's amendment to the specification.

2.   The objection to the claims in the last Office Action has been overcome by the applicant's amendment to claim 19. the applicant cancelled claim 19.

3.   The 35 USC 112 first paragraph rejection in the last Office Action for claims 1-16, 20-23, 33 and 35 have been overcome by the applicant's amendment to the claims.

4.   The 35 USC 112 second paragraph rejection in the last Office Action for claims 34 and 36 have been overcome by the applicant's amendment to the claims.

5.   The 35 USC 101 rejection in the last Office Action for claims 1-8 and 17-29 have been overcome by the applicant's amendment to the claims.

REASONS FOR ALLOWANCE

6.   Claims 1-18, 20-31 and 33-42 are allowed.

7.   The following is an examiner's statement of reasons for allowance:

The present invention of method claims 1 and 17 with their corresponding claims for a system discloses a method of integrating and modeling information stored in a plurality of disparate databases and a method for creating a behavioral model from information stored in a plurality of disparate databases. Claim 1 discloses identifying at least one qualitative variable which is common to each database of the plurality of disparate databases; transforming the at least one qualitative variable into one or more

quantitative variables; converting a portion of the information stored in each database of

the plurality of disparate databases according to the one or more quantitative variables

to form converted information; performing a cluster analysis using converted information

from each database of the plurality of disparate databases to form a plurality of clusters;

linking through the plurality of clusters the plurality of disparate databases to form an

integrated database; and creating a behavioral model, using corresponding data of the

plurality of clusters of the integrated database, for predicting individual behavior. Claim

17 discloses determining a plurality of variables from each database, and converting the

plurality of variables to form a plurality of statistical drivers, at least a portion of the

plurality of statistical drivers common to each database of the plurality of disparate

databases; performing a first cluster analysis using corresponding data of the plurality of

statistical drivers common to each database of the plurality of disparate databases to

create a plurality of simultaneous cluster solutions across all databases of the plurality

of disparate databases; linking through at least one simultaneous cluster solution of the

plurality of simultaneous cluster solutions the information stored in the plurality of

disparate databases; and validating at least one simultaneous cluster solution of the

plurality of simultaneous cluster solutions as a discriminatory behavioral model for

predicting individual behavior.

As to claim 1, the closes prior art Gupta (Gupta, An Introduction to Data

Warehousing, System Services Corporation, August 1997 [GOOGLE]) teaches data

warehouses are most successful when data can be combined from more than one

operational system. The data warehouse may effectively combine data from multiple

source applications such as sales, marketing, finance, and production. A data warehouse logical model aligns with the business structure rather that the data model of any particular application. The entities defined and maintained in the data warehouse parallel the actual business entities such as customers, products, orders, and distributors. The terms and names used in the operational system are transformed into uniform standard business terms by the data warehouse transformation processes. Physical transformation includes the use of easy-to-understand business terms, and standard values for the data. Nearly all data in a typical data warehouse is built around the time dimension. The time dimension in the data warehouse also serves as a fundamental cross-reference attribute. Another attribute of today's data warehouses is the predefined and automatically generated summary views. A data warehouse may feed data to other data warehouses or smaller data warehouses called data marts. Gupta and the prior art of record fails to teach or suggest performing a cluster analysis using converted information from each database of the plurality of disparate databases to form a plurality of clusters, linking through the plurality of clusters the plurality of disparate databases to form an integrated database, and creating a behavioral model, using corresponding data of the plurality of clusters of the integrated database, for predicting individual behavior. Specifically, Gupta and the prior art of record teach combining data stored in a data warehouse, i.e., a table join, where as the claimed invention links data through the cluster analysis, which is not a table join.

Apté (Apté, Data Mining – An Industrial Research Perspective, IEEE Computational Science and Engineering, April-June 1997 [GOOGLE]) in combination

with Gupta teaches the data analysis algorithms (or data mining algorithms, as they are more popularly known nowadays) can be divided into three major categories based upon the nature of their information extraction. These categories are as follows: predictive modeling (a.k.a. classification or supervised learning), clustering (a.k.a. segmentation or unsupervised learning), and frequent pattern extraction. Predictive modeling is based upon techniques used for classification and regression modeling. Apté in combination with Gupta and the prior art of record fails to teach or suggest linking through the plurality of clusters the plurality of disparate databases to form an integrated database. Again, Apté in combination with Gupta and the prior art of record teach combining data stored in a data warehouse, i.e., a table join, where as the claimed invention links data through the cluster analysis, which is not a table join.

As to claim 17, the closes prior art Apté (Apté, Data Mining – An Industrial Research Perspective, IEEE Computational Science and Engineering, April-June 1997 [GOOGLE]) teaches for data selection, data needs to be extracted from different databases and joined, and perhaps sampled. If the data is not derived form a warehouse but from disparate databases, values may be represented using different notations in the different databases. As databases grow and are populated with more and more data, it is often necessary to partition them into collections of related records for obtaining better summaries of the apparent distinct sub-populations that are present in the data. A bank may want to segment all its retail customers to get a better feel for the demographic and psychographics breakdown. Clustering permits the bank to perform segmentation across a diverse and large set of features (or variables) that the

bank has access to for all its customers. Clustering is another major class of data mining algorithms. The algorithms attempt to automatically partition the data space into a set of regions or clusters. The goal of the search process used by these algorithms is to identify all sets of similar examples in the data, in some optimal fashion. The notions of similarity are highly subjective, and one of the more popular criteria that have been used for identifying similarity has been Euclidean distances (k-means, hierarchical). Clustering results can only be judged by the value perceived by the end user. Apté and the prior art of record fail to teach or suggest linking through at least one simultaneous cluster solution of the plurality of simultaneous cluster solutions the information stored in the plurality of disparate databases. Apté and the prior art of record teach combining data stored in a data warehouse, i.e., a table join, where as the claimed invention links data through the cluster analysis, which is not a table join.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure

- YOSHIDA (JP 20000820066 A) discloses an Internet database search that provides information which is stored in a separate database.

Any inquiry concerning this communication or earlier communications from the

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6730. The Examiner can normally be reached Monday thru Friday between the hours

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                            "**DRAFT**"]

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18 November 2005

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